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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicant:** Ted Christopher

**Examiner:** F. Jaworski

**Serial No.:** 08/746,360

**Art Unit:** 3305

**Filed:** November 8, 1996

**Docket:** 9872

**For:** FINITE AMPLITUDE DISTORTION-  
BASED INHOMOGENEOUS PULSE  
ECHO ULTRASONIC IMAGING

**Dated:** May 27, 2004

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Sir:

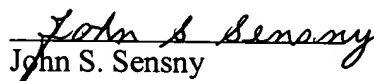
Pursuant to 37 C.F.R. §§1.97 and 1.98, it is requested that the following references, which are also listed on the attached Form PTO-1449, be made of record in the above-identified case.

1. U.S. Patent No. 6,206,833 B1, issued to Christopher, dated March 27, 2001;
2. M. A. Averkiou, et al., "A New Imaging Technique Based on the Nonlinear Properties of Tissues"; *1997 IEEE ULTRASONICS SYMPOSIUM*, Pages 1561-1566;
3. Y. Kono, et al., "Gray-Scale Second Harmonic Imaging of the Liver with Galactose-Based Microbubbles", *Investigative Radiology*; Volume 32, Number 2, Pages 120-125; 1997;

**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, Alexandria, VA 22313-1450 on May 27, 2004.

Dated: May 27, 2004

  
John S. Sensny

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4. J. Ryu, et al., "Ultrasound Evaluation of Normal and Abnormal Fetuses: Comparison of Conventional, Tissue Harmonic, and Pulse-Inversion Harmonic Imaging Techniques", *Korean Journal of Radiology*, Pages 1-8; September 2003;
5. S. Zhou, et al., "Dynamic-Transmit Focusing Using Time-Dependent focal Zone and Center Frequency", *2003 IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, Volume 50, No. 2; Pages 142-152; February 2003;
6. F. Tranquart, et al., "Clinical Use of Ultrasound Tissue Harmonic Imaging", *Ultrasound in Med. & Biol.*, Volume 25, No. 6; Pages 889-894; 1999;
7. T. S. Desser, et al., "Tissue Harmonic Imaging Techniques: Physical Principles and Clinical Applications", *Seminars in Ultrasound, CT, and MRI*, Volume 22, No. 1; Pages 1-10; February 2001;
8. F. A. Duck, "Nonlinear Acoustics in Diagnostic Ultrasound", *Ultrasound in Med & Biol.*, Volume 28, No.1; Pages 1-18; 2002;
9. M. A. Averkiou, "Tissue Harmonic Ultrasonic Imaging", *C. R. Acad. Sci. Paris*, Pages 1139-1151; 2001;
10. F. N. Demirbilek, et al., "Adaptive Spectral Sensitive Filter for Tissue Harmonic Imaging", *Jpn. J. Appl. Phys.*, Volume 42, Part 1, No. 1; Pages 342-349; January 2003;
11. A. Bouakaz, et al., "Native Tissue Imaging at Superharmonic Frequencies", *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, Volume 50, No. 5; Pages 496-506; May 2003;
12. R. Haerten, et al., "Ensemble<sup>TM</sup> Tissue Harmonic Imaging", *Electromedica*, No. 1; Pages 50-56; 1999;
13. M. C. van Wijk, et al., "Performance Testing of Medical Ultrasound Equipment Fundamental vs. Harmonic Mode", *Ultrasonics*, Pages 585-591; 2002;
14. A. Bouakaz, et al., "Super Harmonic Imaging: A New Imaging Technique For Improved Contrast Detection", *Ultrasound in Med. & Biol.*, Volume 28, No. 1, Pages 59-68; 2002;
15. P. N. Burns, et al., "Nonlinear Imaging", *Ultrasound in Med. & Biol.*, Volume 26, Supplement 1, Pages 519-522; 2000;

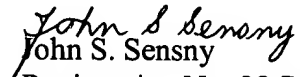
16. E. L. Rosen, et al., "Tissue Harmonic Imaging Sonography of Breast Lesions Improved Margin Analysis, Conspicuity, and Image Quality Compared to Conventional Ultrasound", *Journal of Clinical Imaging*, Pages 379-384; 2001;
17. M. Blaivas, et al., "Tissue Harmonic Imaging Improves Organ Visualization in Trauma Ultrasound When Compared with Standard Ultrasound Mode", *Academic Emergency Medicine*, Volume 9, Number 1, Pages 48-53; January 2002;
18. R. Lencioni, et al., "Tissue Harmonic and Contrast-Specific Imaging: Back to Gray Scale in Ultrasound", *Eur. Radiol.*, Pages 151-165; 2002;
19. U. Schiemann, et al., "Improved Ultrasound Examination of Pancreas Grafts in Type 1 (Insulin-Dependent) Diabetic Patients Using Tissue Harmonic Imaging", *Transplantation Proceedings*, Pages 3081-3084; 2003;
20. G. Schade, "Use of Ensemble<sup>TM</sup> Tissue Harmonic Imaging to Improve the Resolution in Ultrasound Investigation of the Head and Neck Area", *Laryngo-Rhino-Otol*, Pages 413-417; 2002;
21. P. Jiang, et al., "A New Tissue Harmonic Imaging Scheme with Better Fundamental Frequency Cancellation and Higher Signal-To-Noise Ratio", *IEEE Ultrasonics Symposium*, Pages 1589-1594; 1998; and
22. "Recent Innovations in B-mode US", *RG*, Volume 23, No. 4; Page 1028; July-August 2003.

Applicant is submitting copies of the above-cited references.

Applicant notes that a Final Action was issued in this case on March 19, 1998; however in a Communication dated August 31, 1998, that Office Action final rejection was withdrawn. Accordingly, it is believed that 37 C.F.R. §1.97(c) sets forth the requirements needed to have this Disclosure Statement considered. A fee, in accordance with 37 C.F.R. §1.97(c)(2) and 37 C.F.R. §1.17(p), in the amount of \$180.00 is hereby authorized to be charged to Deposit Account Number 19-3886. A duplicate copy of this statement is enclosed.

Accordingly, it is hereby requested that this Information Disclosure Statement be considered and made of record in the above-identified patent application.

Respectfully submitted,

  
John S. Sensny  
Registration No. 28,757  
Attorney for Applicant

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PATENT & TRADEMARK OFFICE

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<b>TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT</b> (Under 37 CFR 1.97(b) or 1.97(c))	Docket No. 9872
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In Re Application Of: **Ted Christopher**

Serial No. 08/746,360	Filing Date November 8, 1996	Examiner F. Jaworski	Group Art Unit 3305
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Title: **FINITE AMPLITUDE DISTORTION-BASED INHOMOGENEOUS PULSE ECHO ULTRASONIC IMAGING**

Address to:  
**Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450**

**37 CFR 1.97(b)**

1. ☐ The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application other than a continued prosecution application under 37 CFR 1.53(d); within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; before the mailing of a first Office Action on the merits, or before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

**37 CFR 1.97(c)**

2. ☒ The Information Disclosure Statement submitted herewith is being filed after the period specified in 37 CFR 1.97(b), provided that the Information Disclosure Statement is filed before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application, and is accompanied by one of:
- ☐ the statement specified in 37 CFR 1.97(e);
- OR**
- ☒ the fee set forth in 37 CFR 1.17(p).

**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**  
(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.  
**9872**

In Re Application: **Ted Christopher**

Serial No.  
**08/746,360**

Filing Date  
**November 8, 1996**

Examiner  
**F. Jaworski**

Group Art Unit  
**3305**

**FINITE AMPLITUDE DISTORTION-BASED INHOMOGENEOUS PULSE ECHO ULTRASONIC**

**Payment of Fee**

(Only complete if Applicant elects to pay the fee set forth in 37 CFR 1.17(p))

- ☐ A check in the amount of \_\_\_\_\_ is attached.
- ☒ The Director is hereby authorized to charge and credit Deposit Account No. **19-3886/RCT** as described below.
- ☒ Charge the amount of **\$180.00**
- ☒ Credit any overpayment.
- ☒ Charge any additional fee required.

**Certificate of Transmission by Facsimile\***

I certify that this document and authorization to charge deposit account is being facsimile transmitted to the United States Patent and Trademark Office (F:

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**Certificate of Mailing by First Class Mail**

I certify that this document and fee is being deposited on **May 27, 2004** with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*John S. Sensny*  
Signature of Person Mailing Correspondence

**John S. Sensny**

\_\_\_\_\_  
Typed or Printed Name of Person Mailing Certificate

\*This certificate may only be used if paying by deposit account.

*John S. Sensny*  
Signature

Dated: **May 27, 2004**

**John S. Sensny**  
**Registration No. 28,757**  
**Scully, Scott, Murphy & Presser**  
**400 Garden City Plaza**  
**Garden City, New York 11530**  
**(516) 742-4343**

cc: JSS:jy

**LIST OF REFERENCES  
CITED BY APPLICANT**

(Use several sheets if necessary)



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Ted Christopher

**Filing Date**  
November 8, 1996

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3305

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL*		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (if appropriate)
	AA	6,206,833 B1	3/27/01	Christopher			
	AB						
	AC						
	AD						
	AE						
	AF						
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	AH						
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		Foreign Document Number	Date	Country	CLASS	SUBCLASS	TRANSLATION	
							YES	NO

**OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)**

		M. A. Averkiou, et al., "A New Imaging Technique Based on the Nonlinear Properties of Tissues"; 1997 <i>IEEE ULTRASONICS SYMPOSIUM</i> , Pages 1561-1566;
		Y. Kono, et al., "Gray-Scale Second Harmonic Imaging of the Liver with Galactose-Based Microbubbles", <i>Investigative Radiology</i> ; Volume 32, Number 2, Pages 120-125; 1997;
		J. Ryu, et al., "Ultrasound Evaluation of Normal and Abnormal Fetuses: Comparison of Conventional, Tissue Harmonic, and Pulse-Inversion Harmonic Imaging Techniques", <i>Korean Journal of Radiology</i> , Pages 1-8; September 2003;

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**DATE CONSIDERED**

\* **EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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		S. Zhou, et al., "Dynamic-Transmit Focusing Using Time-Dependent focal Zone and Center Frequency", <i>2003 IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , Volume 50, No. 2; Pages 142-152; February 2003;
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		T. S. Desser, et al., "Tissue Harmonic Imaging Techniques: Physical Principles and Clinical Applications", <i>Seminars in Ultrasound, CT, and MRI</i> , Volume 22, No. 1; Pages 1-10; February 2001;

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		R. Haerten, et al., "Ensemble™ Tissue Harmonic Imaging", <i>Electromedica</i> , No. 1; Pages 50-56; 1999;
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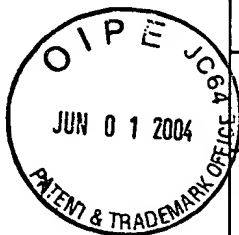
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